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ABSTRACT

This paper discusses the development of a measure designed to assess student acquisition of communication competencies. It reports on a study assessing 180 students who took pre- and mid-program assessment tests, and the analysis of 33 questions taken from those tests. The specific components examined included critical thinking, interpersonal, decision-making, and theoretical competencies. The paper discusses results for each in detail. It concludes that testing by individual components yields information about what entering students may need in their programs and what exiting students have achieved, thus indicating that the method is viable and that it yields sufficient information to allow faculty to gain insights into the effectiveness of the program. Two tables of data are included. (Contains 15 references.) (Author/SR)

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Multiple Approaches to Communication Program Assessment

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A paper presented at the annual meeting of the International Communication Association, Washington, DC, May 29, 1993.

Abstract: The purpose of this paper is to discuss development of a measure designed to assess student acquisition of communication competencies. This study assessed 180 students who took pre- and mid-program assessment tests, and the analysis of 33 questions taken from those tests. Specifically, the components examined included: critical thinking, interpersonal, decision-making, and theoretical competencies.

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Multiple Approaches to Communication Program Assessment

When our department began the state-mandated assessment process six years ago, we considered various assessment measures available (e.g. in Larson, Backlund, Redmond, and Barbour, 1978; and Rubin, Sisco, Moore, and Quianthy, 1983), but opted to develop our own. The dearth of funds for assessment, our concern about the measures available, and the need for assessment relevant to our specific program were key factors in our decision to develop our own assessment testing.

We gradually changed our emphasis from testing course content at graduation (Neer, 1989) to testing competencies throughout a student's studies, which changed the nature of the our entire assessment process (Aitken & Neer, 1992). Our test has evolved into one with multiple approaches to data collection--field specific content testing, self-report measures of communication measures, a portfolio, analysis of instruction, interviews, and more--which are collected and analyzed at different stages of student development (Aitken & Neer, 1991). Each student was involved in a minimum of three hours of assessment. To improve our original test for graduating seniors, we attempted to find ways to make our testing more effective by modifying the questions to emphasize behavioral knowledge rather than concepts or labels, and by examining a student's communication consumption and activities in various contexts. This multiple approach has proven useful in our attempt to collect accurate information.

We concur with those who suggest that assessment must be behaviorally-based, such as that conducted by Rubin's (1982) CCAI and the National Teacher Examination administered by the Educational Testing Service. However, we also concur with those who remind us that assessment should not emphasize technique over content (Hunt, 1990) and that cognitive learning also should be used to assess a learner's understanding of technique (Litterst, 1990). Thus, we administered a cognitive test to diagnose conceptual and theoretical deficiencies which may influence the student's behavioral performance or philosophical appreciation of communication.

The purpose of this paper is to report the results of assessing specific competencies. Our competency-based curriculum must have ways to measure student development of their communication competencies. Thus, we created an assessment measure that gave faculty information about the cognitive foundations of communication competencies. Although we obtained some valuable information from our original test results, with only a post-test, our information was limited. Thus, we wanted to develop a pre-test that could be administered to students upon entering the program, and again during the program. The first pre-and mid-program tests were given in August, 1991 and again in January 1992. In this study, 180 students participated in pre and mid-program assessment cognitive tests that contained 33 questions designed to measure critical thinking, interpersonal, decision-making, and theoretical competencies.

Operationalization of Communication Competency Test Components

The faculty limited the Pre-Communication Assessment Measure (Pre-CAM) to the four competencies--critical thinking, interpersonal, decision-making, and theoretical competencies--common to two of five required courses (i.e., students must complete public speaking and introduction to communication theory prior to enrolling in upper-divisional coursework). The need for developing such competencies has been supported by scholars in our field (e.g. Frey & Botan, 1988; Fritz and Weaver, 1986; Spitzberg & Hurt, 1987; Wiemann, 1977). Many competencies are assessed at mid-program through portfolio evaluation of samples of a student's written and other assigned work (Aitken, 1993). The department opted for a portfolio as a means of assessing actual communication performance because the Pre- and Post-CAM only were intended to measure cognitive performance. Although the competencies overlap, for our analysis, they were considered discrete categories or test components.

Critical thinking competence (CT). Critical thinking competence includes the ability to analyze supporting materials, make connections and applications to various contexts, and understand the logic of different thinking patterns. The student should recognize the following process skill objectives: (a) to increase accurate observation and memory, (b) to reflect on one's biases and perspectives, (c) to develop the ability to see various sides of an issue, (d) to increase objectivity, (e) to recognize persuasive language, (f)

to analyze premises and conclusions, (g) to recognize fallacious reasoning, (h) to determine important questions to ponder, and (i) to find answers to important questions through independent research and problem-solving skills.

Interpersonal competence (IC). A summary of the research on interpersonal communication includes ten major areas needing competence: self-disclosure, empathy, social relaxation, assertiveness, interaction management, altercentrism, expressiveness, supportiveness, immediacy, environmental control (Rubin & Nevins, 1988). Within this framework, the student should understand the influence of intrapersonal variables, including: perceptual processes, self-esteem and self-confidence, and belief-attitude-value structures. The student also should recognize the influential role that intrapersonal processes play in affecting interpersonal outcomes.

Decision-making competence (DM). Decision-making competence includes application of: reflective thinking processes, rhetorical sensitivity, argumentation methods, decision emergence, task process activities, relational activities, topic focus, listening, critical thinking, and developmental processes. The student should be able to determine the most appropriate methods by which to communicate effectively, while applying various communication competencies to the decision-making process.

Theoretical competence (TC). Theoretical competence contains the ability to acknowledge the functions of theories

that organize, explain, and describe experience. The student should be able to appreciate going beyond the observable to provide predictive knowledge (to control events) and to stimulate and guide research in the field of communication. The student should be able to identify major paradigms of communication theories within differing contexts.

Method

Subjects. The subjects were 180 students enrolled in a mid-sized, urban, mid-western university. Pre-program assessment was investigated by administering the Pre-CAM to 88 students enrolled in the department's cornerstone course in communication theory. The course is required prior to student declaration of a communication major. The course ("Introduction to the Study of Human Communication") was developed to introduce students to the discipline and included prominent areas of inquiry, theoretical frameworks, and methods of communication research. Mid-program assessment was conducted through administration of the Pre-CAM to 92 students enrolled in three upper-divisional courses in interpersonal, organizational, and group communication. Students completed the test during the 1991-1992 school year (first year students, sophomores, juniors, and seniors).

Apparatus. The Pre-CAM consisted of 33 multiple-choice items over the four competencies previously described. Fifty items were originally developed for the test; seventeen of the items were removed to improve the reliability of the test (see results section). Approximately one-third of the test items

examined conceptual generalizations underlying the human communication process. Another fifty percent of the items were situational-specific and required the application of communication concepts and principles in highly contextualized settings. The remaining items tested general knowledge of strategies and methods across more generalized communication contexts. Students not only had to understand the theoretical principles at hand, but to make decisions regarding which theory was most appropriate in each of the situations defined.

Communication consumption measures. Communication consumption was operationalized as frequency of communication activity engaged in both print and electronic media. Regarding newspaper readership, students identified those sections of the paper most frequently read. Print media also included serials most often read by type (e.g., news weeklies, arts and entertainment, general interest).

Communication activity measures. Students were instructed to select their preferred communication activity along several dimensions: (a) the preferred interpersonal activity (dyadic vs. social interaction), and (b) the level of communication (e.g., interpersonal, small group, public, and mass) that they perceived to be most important.

Additional mediators. The initial development of the CAM (Neer, 1989) revealed that two key factors that mediated test scores: (a) transfer status of students and (b) employment status while attending school. Two additional variables were examined as potential mediators of cognitive performance on the

Pre-CAM. The first mediator was the kind of course assignment that students "most preferred" to complete (options included term paper, objective test, essay test, public speech, conduct a small group discussion, roleplay, perform in a skit). These were reduced to written assignment, oral assignment, and interpersonal assignment to ensure adequate cell sizes across the various options.

Hunt (1990) asserted the need for ensuring student motivation when he described the situation as his university. That is, to counter student resistance to taking assessment tests the university can provide a monetary incentive for a student to take the test and do well on the test. Our university has not offered a similar incentive; but we wanted to test whether an alternative reward incentive could increase motivation. Thus, the second variable tested for its mediating potential was incentive value or reward value for taking the Pre-CAM. Although the university has mandated assessment testing, our experience over the last five years has shown that some students lack motivation to show up to take the test, others rush through the test in less than half the time most students require, and some students simply decide not to complete certain portions of the test. Although these students account for only fifteen percent of all students, their non-involvement has forced us to eliminate them from assessment analysis. We therefore decided to offer an incentive value to students who completed the Pre-CAM: half of the cornerstone courses (n = 2) were informed that the highest scores (i.e.,

one to three students) could exempt students from taking the final exam in the course. The other half of the cornerstone courses were not provided this offer, and only were informed that the test was required for the portfolio of all incoming majors.

Analysis. The reliability of the Pre-CAM was assessed with KR-20 estimates and intracorrelations among the four components and correlation between each component and the test composite (i.e., the four summed components). We wanted to predict overall Pre-CAM composite scores and, more importantly, detect test components that contributed the most variance to composite scores or identify those components that yielded significance independent of the composite test score. Thus, ANOVA tested for significant mean differences between levels of all predictor variables. The Pre-CAM composite and MANOVA determined mean significance between the predictors and the four competencies (test components) that comprise the composite score.

Results

Pre-CAM reliability. The four competency-component Pre-CAM assessment test yielded an overall KR-20 reliability coefficient of .71. Individual alphas for the components were as follows: theoretical competence = .56, decision-making competence = .63, critical thinking competence = .70, and interpersonal competence = .69. All four components correlated between .68 and .82 with the Pre-CAM composite ($p < .001$ with two-tailed test). The test components were significantly

intracorrelated with coefficients between .26 and .58 ($p < .01$ with two-tailed test) with the theoretical competence component generating the highest intracorrelations (i.e., .40 to .58) with the other three components. Descriptive statistics revealed a grand mean of 20.59 and a standard deviation of 4.91 with a scoring range of 23 (6 through 29).

Reliability of the Pre-CAM also was assessed in relation to self-reported grade point average (GPA) and class standing. If the Pre-CAM is a valid cognitive measure of communication competence, it could be argued that GPA and class standing should positively predict the Pre-CAM components; that is, because GPA is a general indicator of learning, GPA should function as an indicator of learning within and across coursework. Class standing also should function in a similar manner; that is, one would expect upper-divisional students--who have completed courses in which the competencies have been developed--to score higher on the Pre-CAM than incoming sophomore-level students.

ANOVA significance was declared for the Pre-CAM composite with GPA ($F = 6.75$, $df = 2.175$, eta-squared = .07, power = .91, $p < .001$). GPA also impacted on all competencies with the exception of critical thinking competence. GPA generated the strongest influence on decision-making competence ($F = 5.40$, eta-squared = .06, power = .84, $p < .005$) and theoretical competence ($F = 4.74$, eta-squared = .05, power = .79, $p < .01$). Although demonstrating a low power estimate, GPA also impacted

interpersonal competence (F = 2.99, eta-squared = .03, power = .57, $p < .05$).

Class standing failed to yield significance with the Pre-CAM composite but did yield MANOVA significance with the four competencies (Wilks' = .91, df = 2.174, effect size = .05, power = .83, $p < .02$). Univariate significance was observed for the interpersonal competence component (F = 3.17, eta-squared = .04, power = .60, $p < .04$) with the theoretical competence and decision-making competence components each approaching significance at the .07 and .09 level, respectively. Table 1 reports mean scores for the influence of GPA and class standing on each of the four test components.

Table 1 about here

Effects of Communication Consumption on Communication Competence. MANOVA significance was observed with two consumption variables: frequency of weekly television viewing (Wilks' = .91, F = 2.12, df = 2.175, effect size = .05, power = .85, $p < .03$) and frequency of newspaper editorial page consumption (Wilks' = .94, F = 2.90, df = 1.173, effect size = .06, power = .78, $p < .02$). Univariate tests for frequency of television use revealed that students who viewed television 20 or more hours per week scored lower on the theoretical competence component (F = 4.03, eta-squared = .04, power = .71, $p < .02$) and the interpersonal competence component (F = 5.64, eta-squared = .06, power = .86, $p < .004$). Editorial page

reading resulted in univariate significance with the theoretical competence component ($F = 8.27$, eta-squared = .05, power = .86, $p < .005$). Table 2 reports mean scores of television viewing and editorial reading frequency for the four test components.

Table 2 about here

Several other communication consumption variables approached MANOVA significance with the four test components. Before determining whether to report these findings, ANOVA first was conducted with the Pre-CAM composite. Our concern rested with identifying which Pre-CAM components influenced the Pre-CAM composite. Thus, MANOVA tests that approached significance are reported for those consumption variables that yielded a significant ANOVA with the Pre-CAM composite.

One consumption variable yielded ANOVA significance with the Pre-CAM composite. The communication medium perceived to be the "most informative" yielded significance with the Pre-CAM composite ($F = 4.61$, $df = 1.170$, effect size = .026, power = .57, $p < .03$) and approached MANOVA significance with the four test components (Wilks'= .94, $F = 2.26$, eta-squared = .05, power = .65, $p < .06$). Univariate significance was observed with the decision-making component ($F = 4.46$, eta-squared = .03, power = .55, $p < .04$; interpersonal = 4.24, public/mass = 4.77).

The communication medium that students perceived as "most enjoyed" approached significance with the test composite ($F = 3.53$, $df = 1.178$, eta-squared = .02, power = .46, $p < .06$) but failed to achieve MANOVA significance with the four test components. However, ANOVA significance was observed with the interpersonal competence component ($F = 6.54$, eta-squared = .04, power = .72, $p < .01$; interpersonal = 5.91, public/mass = 5.03). Students who preferred dyadic communication to other forms of interpersonal communication (i.e., social gatherings and activities) also scored higher on the interpersonal competence component ($F = 4.93$, $df = 1.123$, eta-squared = .04, power = .59, $p < .03$; dyadic = 6.14, other = 5.52). In addition, students who watched weekly news shows scored higher on the critical thinking component than students who failed to view weekly news shows ($F = 4.34$, $df = 1.173$, eta-squared = .02, power = .54, $p < .04$; watch = 4.29, do not watch = 3.76).

These latter findings for which only univariate significance was observed constitutes "data snooping" on our part. The reader should interpret these findings with caution because the results failed to achieve either ANOVA significance with the test composite or MANOVA significance with the four test components. We report these findings only in the interest of informing educators and administrators on the potential influence of communication consumption and communication activity preferences on cognitive performance.

Additional Pre-CAM mediators. In addition to the reliability variables and the communication consumption

variables, employment status, transfer vs. non-transfer status, preferred course assignment, and test incentive or reward value for completing the test also were examined.

Reward value yielded significance with the test components (Wilks' = .88, F = 2.59, df = 1.88, effect size = .11, power = .71, $p < .05$). Although achieving MANOVA significance, two of the test components only approached univariate significance. Students provided with the test incentive--possible exemption from the course final examination--scored higher on the theoretical competence (F = 2.83, eta-squared = .03, power = .48, $p < .09$; Reward = 6.31, No Reward = 5.75) and the interpersonal competence components (F = 3.17, eta-squared = .04, power = .52, $p < .08$; Reward = 5.84, No Reward = 5.18).

Transfer status--whether students had transferred into the university from another institution--also yielded MANOVA significance (Wilks' = .89, F 2.45, df = 2.174, effect size = .06, power = .91, $p < .02$) and univariate significance with all test components except interpersonal competence. Significance also was observed with the test composite (F = 8.97, effect size = .09, power = .97, p = .001; community college transfer = 18.75, four-year college transfer = 21.78, continuing student = 21.60). Community college transfer students also scored lower on theoretical competence (F = 4.19, eta-squared = .05, power = .73, $p < .02$), decision-making competence (F = 5.37, eta-squared = .06, power = .84, $p < .005$) and critical thinking competence (F = 6.02, eta-squared = .02, power = .88, $p < .003$) than did either four-year college and university transfer

students or students who only have attended the institution at which this study was conducted. Community college transfer students scored nearly a point lower than all other students on critical thinking competence (i.e., 3.36 versus 4.34) and over a half-point lower on both the theoretical competence (i.e., 5.78 versus 6.60) and decision-making competencies (i.e., 4.17 versus 4.90).

Preferred course assignment (on which students thought they would perform the best) also approached MANOVA significance (Wilks' = .91, F = 1.90, df = 2.165, effect size = .045, power = .80, $p < .058$) and univariate significance with the theoretical competence component (F = 3.53, eta-squared = .04, power = .65, $p < .03$; written assignment = 6.24, oral assignment = 6.04, interpersonal assignment = 7.03).

Discussion

A basic and crucial outcome of this study is that apparently this form of assessment testing can work. Testing by individual components yields information about what entering students may need in their program and what exiting students have achieved. Despite the need to continue to modify the testing procedures to better measure the competencies, the method appears viable. Although assessment testing may raise more questions than it answers, the collection of data in this case has yielded sufficient information to allow the faculty to gain insights into the effectiveness of the program. We can support our contention that students are retaining information they learn in earlier courses. The significant difference for

class standing on the interpersonal component, for example, provides useful ammunition for a long-time argument. Students sometimes claim that courses in interpersonal communication are "just common sense," and they fail to change student effectiveness in interpersonal situations. Perhaps the significantly higher Pre-CAM scores on the interpersonal component for seniors helps negate the common sense assumption from students. This information may be valuable in defusing this myth when students enter the program and before they they have enrolled in the upper-divisional courses in interpersonal and group communication.

Linking testing directly to communication consumption has excellent potential for analysis. The analysis of a student's communication consumption and preferred activities outside the classroom provides a more interactive method for showing competency level. Although the communication consumption of our students failed to consistently affect Pre-CAM scores; knowledge about both consumption--the way students use media and the communication activities in which they engage--can inform classroom teachers about how to relate course material to students' interests, tap their reservoir of knowledge during class discussion, and stimulate students to raise their own questions in class. This kind of information may provide ways to adapt course content to students and motivate students to redirect part of their communication consumption and activities to sources that strengthen their communication competencies. Although analysis of communication consumption and activity has

predictive value, one cannot assume that a relationship indicates causation. Faculty can explore, however, the effect of using instructional materials to which the students easily relate. In addition, faculty can encourage use of media consumption and communication activities that may lead to higher competency levels. We are not prepared to outline all that should be done on this issue, but this kind of assessment can lead to improved student communication competencies. For instance, the viewing of weekly television news shows has a small but positive effect on critical thinking competence. Thus, in a course in rhetorical criticism, for example, students could be assigned to analyze a weekly news show or an editorial. Our intention is not to alter communication consumption habits--although future research may suggest whether that is appropriate or inappropriate--but to redirect some of the time that students spend on television viewing to watch programs that will reinforce and extend classroom learning.

A small, but consistent, problem in our assessment testing has been student motivation. We have made participation voluntary because we want to avoid sabotaged results. While some departments have chosen to require certain test scores to graduate, we believe there are ethical problems in doing so when students had no such requirements upon entering the program. Although such a mandate may be appropriate at this point, doing so may change the "helping-faculty" nature of assessment we now enjoy to a more "punishing-students" nature.

An award for the highest student score or other positive approaches may prove more beneficial in obtaining the information needed to assess our program adequately (e.g., a citation on student's diploma and a certificate from the Chair and Dean that acknowledges this level of achievement). Students may find this recognition useful to cite on their resumes. The use of a grade incentive--possible final examination exemption in this case--has shown that external motivational devices help increase student performance on assessment tests. This information is valuable because faculty and administrators need assessment testing to yield the most accurate results possible.

Perhaps it is not the scores, but the entire process of assessment--which commences with the Pre-CAM--that is most valuable because the process forces continual self-examination by the faculty. Twenty years ago, the trend of requiring student evaluation of faculty began a process of self-analysis of teaching that is well-accepted today. Perhaps the assessment trend is extending the depth of faculty self-analysis, while providing real potential for improved instruction. The assessment process and resulting changes can create a new sense of pride among administrators, faculty, and students. Our specific program is more clearly focused, faculty are engaged in continuous dialog about the improvement of undergraduate instruction, and students are responding to our improved dialog about their learning. While students may sometimes complain about the time-consuming nature of the

assessment process, they appear to take the tests seriously, show interest in the results, and appreciate our efforts to improve their learning. The assessment process has enabled faculty to see a larger picture of how their instruction fits into a student's entire learning process, while enabling students to better understand faculty expectations. In our situation, there is a renewed emphasis on our joint responsibility for success.

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Table 1

Effects of GPA and Class Standing

	Component Mean Scores			
	TC	DM	CT	IC
GPA:				
2.00-2.25	5.70	3.70	3.10	4.80
2.26-2.99	6.00	4.48	3.98	5.70
3.00-3.75	6.69	4.94	4.15	6.06
Class Standing:				
Sophomore	5.81	4.42	4.12	5.31
Junior	6.27	4.90	3.98	5.70
Senior	6.62	4.44	4.00	6.20

Table 2

Effects of Media Consumption

	Component Mean Scores			
	TC	DM	CT	IC
Editorial Page:				
Read	6.75	4.67	4.23	6.02
Do not read	6.05	4.67	3.92	5.68
Weekly Television Use				
Less than 3 hours	6.11	4.72	4.00	6.50
Between 3 and 15 hours	6.68	4.74	4.08	5.89
Twenty or more hours	5.47	4.13	3.65	4.87